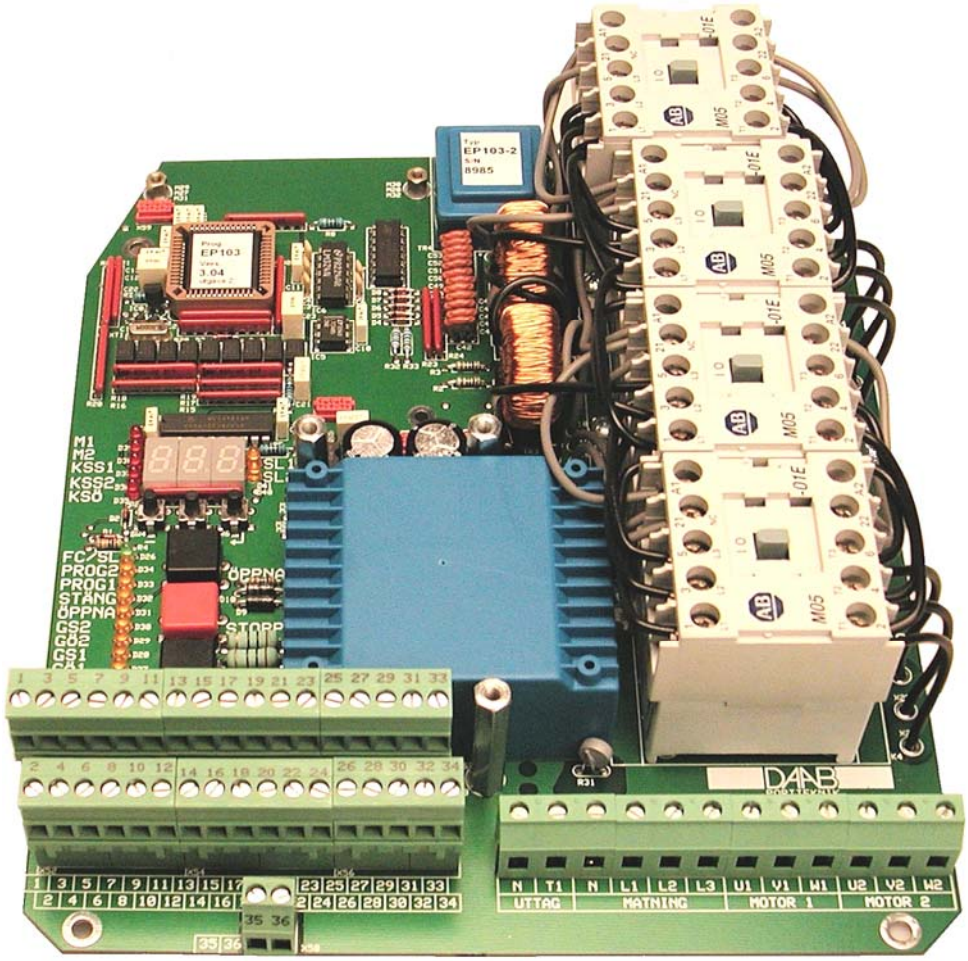
Automatic Control Panel, Type EP103

For electrically operated gates, barriers & doors

User Manual

Version 3.12
Edition 1 L



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Descriptions and pictures in this user manual is not binding. DAAB reserves the right to whenever make product changes. These changes can be done without updating this user manual.

Notes

FC	Stands for "fotocell" - **Photocell**
KSS	Stands for "klämskydd stängning" - **Safety buffer, close direction**
KSÖ	Stands for "klämskydd öppning" - **Safety buffer, open direction**
S	(in GS2 etc.) stands for "stänga" - **Close**
SL	Stands for "slinga" – **Inductive ground loop**
Ö	(in GÖ2 etc.) stands for "öppna" - **Open**
Ö/S	Stands for "Öppna/Stäng" - **Open/Close**

Declaration of conformity

According to AFS 1994:8, Attachment 2 A,

Manufacturer: DAAB Portteknik AB
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Phone: +46 (0)435 77 95 00
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Declares that:

Product: Automatic Control Panel, Type EP103-1, EP103-2
for electrically operated gates / barriers and doors, is manufactured in accordance with:

Low voltage directive (LVD) 73/23/EEC
The directive for electromagnetic compatibility (EMC) 89/3366/EEC with changes 92/31/EEC and 93/68/EEC.

Is produced in agreement with following harmonised standards:

SS-EN 418	"Safety of machinery - Emergency stop equipment, functional aspects - Principles for design"
SS-EN 50081-1	"Electro-magnetic compatibility - Generic emission standard - Part 1: Residential commercial and light industry"
SS-EN 55014-1	"Electro-magnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1: Emission"
SS-EN 55022	"Information technology equipment - Radio disturbance characteristics - Limit and methods of measurement"
SS-EN 60204-1	"Safety of machinery - Electrical equipment of machines - Part 1: General Requirements"
SS-EN 61000-3-2	"Electro-magnetic compatibility (EMC) - Part 3-2: Limits - Limit for harmonic current emissions (equipment input current up to and including 16 A per phase)"
SS-EN 61000-3-3	"Electro-magnetic compatibility (EMC) - Part 3: Limits - Section 3: Limitation of voltage fluctuations and flicker in low-voltage supply systems for equipment with rated current up to and including 16A"
SS-EN 61000-4-2 A 2	"Electro-magnetic compatibility (EMC) - Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test"
SS-EN 61000-4-3	"Electro-magnetic compatibility (EMC) - Part 4: Testing and measurement - Section 3: Radiated, radio-frequency, electromagnetic field immunity test"
SS-EN 61000-4-4	"Electro-magnetic compatibility (EMC) - Part 4: Testing and measurement techniques - Section 4: Electrical fast transient/burst immunity test - Basic EMC Publication"
SS-EN 61000-4-6	"Electro-magnetic compatibility (EMC) - Part 4: Testing and measurement - Section 6: Immunity to conducted disturbances, induced by radio-frequency fields"
SS-EN 61000-4-11	"Electro-magnetic compatibility (EMC) - Part 4: Testing and measurement techniques - Section 11: Voltage dips, short interruptions and voltage variations immunity tests"
SS-EN 61000-6-2	"Electro-magnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments"

Safety instructions

The manual that's delivered with the control panel should be read through carefully, it contains important information about safety, commissioning and usage. Risk for serious personal injury or material damage can arise if the safety instructions aren't followed.

WARNING! Incorrect installation or wrong usage of this product can cause injury to persons, animals or property.

- Connection / inspection should only be carried out by a suitably qualified person.
- The gate / barrier / door can be dangerous if incorrectly connected / programmed with the control panel.
- The control panel contains live components when connected to a power supply.
- Disconnect power supply / battery backup before any work is carried out on the unit.
- Check that the earth lead is correctly connected: all of the metal parts in the gate / barrier construction, and all system components with an earth terminal should be connected to protective earth.
- The isolator switch must be switched off for the personal safety whilst working on the unit.
- When handling the unit, ESD-directions should be followed.
- The unit should be mounted inside a cabinet designed for its surroundings. The cabinet should protect the electronics from damp, dust and risk of contact. If the cabinet is placed outside, or is at risk of condensation, a suitable heating element must be employed.
- The electronics should be protected against damp.
- Packing material should be handled and sorted according to valid EU directives. Keep plastic bags etc. out of the reach of children.
- Store this manual in a suitable location for future reference.
- The unit is designed solely for the application that is given in this manual. Any operation not expressly specified could damage the unit and cause potentially hazardous gate operation.
- DAAB Portteknik declines all responsibility for consequences arising from the misuse of this product or usage that deviates from its design.
- Mount all safety components (photoelectric sensors, safety buffers, etc.) in accordance with specific manuals and technical standards.
- The unit or associated components must not be modified in any way.
- The end user should only carry out repairs to this equipment if they are suitably qualified.
- The installer must inform the end user of the control panel's functions and how the gate / barrier / door can be released (open manually) during power failure or other emergency situation.
- People, animals and property should be kept clear of the gate / barrier / door at all times.
- Radio transmitters and other remote controls should be kept out of reach of children to avoid unintentional operation of the gate / barrier / door.

Recycling of used electronics

DAAB Portteknik will accept old DAAB circuit cards for environment friendly recycling.

‘Stop’ signals and automatic closing

Stop signals

Unless a ‘Stop’ button is mechanically latched to keep the control circuit broken, the gate / barrier / door will close if it receives another command signal (open or close) and a time has been set in Channel C52. This applies to any stop signal and also the ‘stop’ function available via the programmable inputs (Open/Stop/Close) in channels C61 and C62.

WARNING! Any ‘command’ signal will start the automatic close countdown after a stop signal has been sent. This applies to all normal open and close signals as well as remote inputs such as induction loops, time switches, GSM modules etc.

For example: If a vehicle drives on and off a “free exit loop” whilst the gate / barrier / door has been held open by a ‘stop’ signal, the control panel will begin the automatic countdown and the equipment will close in the time set in either channel C49 or C50..
Read more about automatic closure in the chapters for respective types of equipment.

C52	Setting automatic closure after ‘stop’ has been effected.
0	No automatic closing signal is given by the panel after a ‘stop’ signal is received. Another command is required.
0,20-9,59 (min,sec)	No automatic closing signal is given by the panel until the set time has expired or another command is received.

Hold open

To hold equipment open whilst working in the vicinity either:

- Open with an instruction and isolate from the mains power supply.
- Open with a continuous signal.
- Open with a signal and use a lock-down stop button.

Technical specification

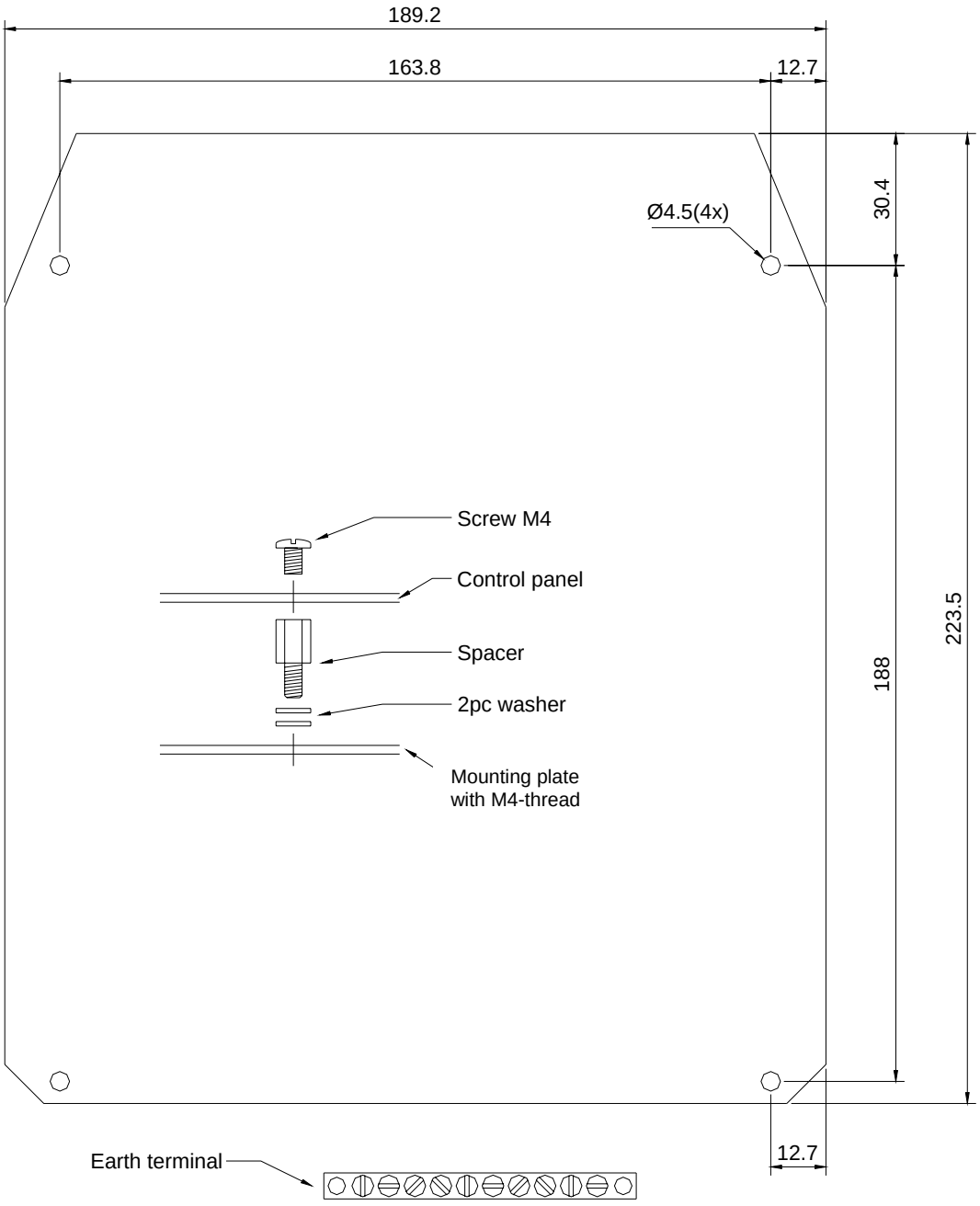
Dimensions (WxHxD)	190x224x60 mm.
Weight	Model type Ep103-2 =1.7 kg. Model type EP103-1=1.4 kg.
Supply voltage	EP103 is suitable for three-phase or single-phase operation.
Supply voltage, three phase	3x400VAC, 3x230VAC, (±10%) Fuse max T10A.
Supply voltage, single phase	1x230VAC (±10%) Fuse max T10A.
Frequency	50Hz.
Motor	EP103-1 for single drive motor, EP103-2 for two drive motors.
Motor, three-phase 3x400V	three-phase induction motor, 0.18-0.75kW.
Motor, three-phase 3x230	three-phase induction motor, 0.18-0.37kW.
Motor, single-phase	single-phase motor with operating condenser 0.18-0.25kW.
Fuses	External fuse required = 10A.
Power consumption	Automatic controls max 22 VA + electric motors.
Temperature range	0 to 50°C.
EMC	
Emission: EN 61000-6-3:2001	EN 55022 class B, EN 55014-1, EN 61000-3-2, EN61000-3-3.
Immunity: EN 61000-6-2:1999	EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11.
LVD	EN 60204-1.
Safety Buffers	There are 3 analogue inputs for safety buffer monitoring.
Closing direction	2 inputs, KSS1 and KSS2, for safety buffers - close.
Opening direction	There is one KSÖ input for safety buffers - open.
Sensitivity	There must be >25% differentials when a buffer is actuated.
Resistance	1,0-8,2kΩ with 1% tolerance and power resistance at least ½W.
Safety circuit	
Max resistance	Max 3Ω in stop circuit.
Cable length	Cable length: 0.75mm^2 =max 60m. 1.5mm^2 =max 120m.
Inputs	1 analogue input 0-50V meters voltage after stop circuit.
Motor protection	Internal motor protection circuit meters current on phase L1.
Range of measurement	0.5-4 A
Load sensor	Measures used power.
Range of measurement	0.00-1.99 kW.
Digital inputs (9)	For operation and control of gate.
Logic 0	0-8V
Logic 1	12-30V
Input current	5mA at 24V
Cable length	Max 200m.
Supply to photocell	24V max 50mA.
24V DC output	24V DC for supply to external access control or signal devices etc.
Load	Max 300mA.
Communication	RS-485 between two EP103. Max. cable length 1000 meters.
Degree of protection	The circuit card is intended for mounting inside a cabinet.

Mounting

To ensure that the panel is electrically safe and works correctly it is important that it is mounted inside a weatherproof enclosure inside a secure area.

N.B. The circuit board is earthed via the earth rail, mounting rail, steel mounting panel and the distance screws used for fastening.

- The control panel must be mounted on a metal panel.
- If the metal panel is painted, make sure that the paint is scraped away so a good electrical contact is made.
- The four distance pieces supplied must be used to mount the control panel.
- The earth rail must be mounted on the metal panel.



Connection instructions

Power Supply connection

For the EP103 control panel to be electrically safe, function correctly and comply with current regulations, it is important that it is assembled and connected correctly.

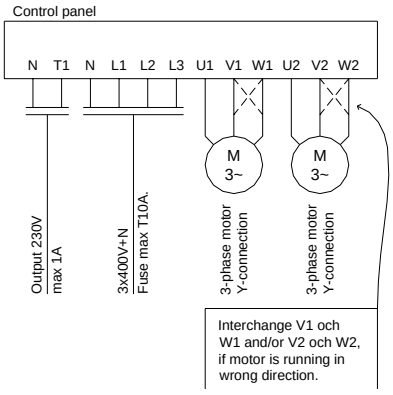
NB: The circuit board must be earthed via the mounting plate.

1. The circuit board must be mounted on a metal plate.
2. If the plate has been painted, see that the paint is scraped off around the fixing points so that a good contact is achieved.
3. The 4 No. M4x10 spacers included must be used..
4. An earth terminal strip must be available on the metal plate.
5. The earth terminal strip must be suitably connected to earth.

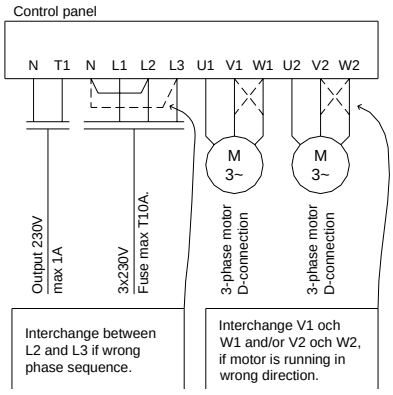
Remember!

- The power supply should only be connected by a competent person.
- The power supply to the circuit board should have a maximum T10A fuse.
- The power supply should be connected via a lockable isolator.
- Check that the supply and motor voltages are compatible.
- The largest motor size that can be connected is 0.75kW (3-phase 3x400V).
- See commissioning for how to check that the motor is running in the right direction.

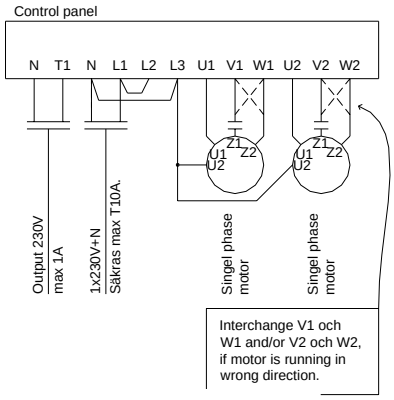
Supply 3x400V with neutral


Control panel
N T1 N L1 L2 L3 U1 V1 W1 U2 V2 W2
M 3~
M 3~
Output 230V max 1A
3x400V+N Fuse max T10A.
3-phase motor Y-connection
3-phase motor Y-connection
Interchange V1 och W1 and/or V2 och W2, if motor is running in wrong direction.

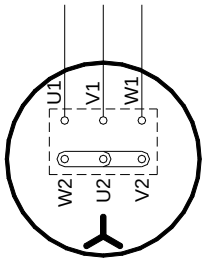
Supply 3x230V without neutral


Control panel
N T1 N L1 L2 L3 U1 V1 W1 U2 V2 W2
M 3~
M 3~
Output 230V max 1A
3x230V Fuse max T10A.
3-phase motor D-connection
3-phase motor D-connection
Interchange between L2 and L3 if wrong phase sequence.
Interchange V1 och W1 and/or V2 och W2, if motor is running in wrong direction.

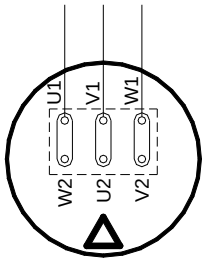
Supply singel phase 230V


Control panel
N T1 N L1 L2 L3 U1 V1 W1 U2 V2 W2
Z1
U1 Z2
U2
Output 230V max 1A
1x230V+N Säkras max T10A.
Singel phase motor
Singel phase motor
Interchange V1 och W1 and/or V2 och W2, if motor is running in wrong direction.

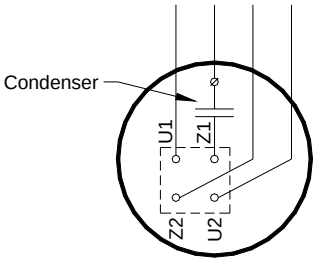
Connection of electric motor



3-phase motor
Y-connection



3-phase motor
D-connection



singel phase motor

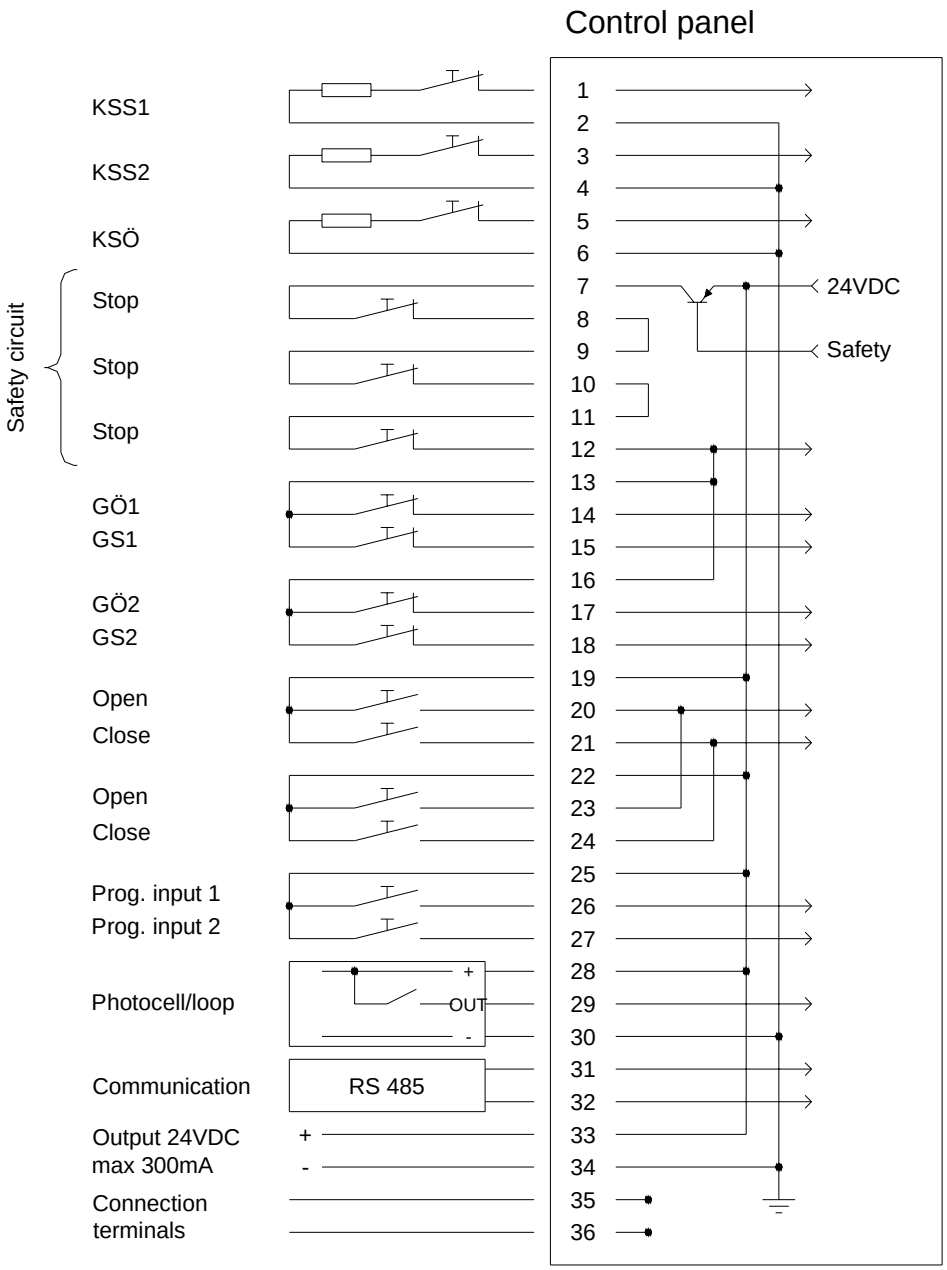
Other voltages are available if requested.

Input Connections

Remember!

- Connection should only be carried out by a competent person. It is important that any personal electrostatic charge is discharged prior to working on the panel.
- The panel must be isolated from the power supply before commencing work.
- Remember that the gate may be dangerous if incorrectly commissioned.
- Do not connect anything in the safety circuit, e.g. relays or lamps, that may interfere with the circuit. If an intermediate relay must be used to obtain open and closed signals, DAAB should be contacted for instructions.
  Safety buffers, stop and limit switches are considered part of the safety circuit.
- Safety buffer circuits must contain a 2.0KΩ or greater resistor to ensure that if the circuit fails, it fails 'safe'.
- This control panel is designed for many applications, therefore not all the input signals may be needed.
- Unused "Stop" terminals must be linked out and photocell / loop terminals to be linked if not used.

For explanation of the input signals see the next page.



List of Input Signals

Safety buffer

Name	Term.	Function
KSS1	1,2	Closing safety buffer, in action when closing. Resistance measurement.
KSS2	3,4	Closing safety buffer, in action when closing. Resistance measurement.
KSÖ	5,6	Opening safety buffer, in action when opening. Resistance measurement.

Stop, safety circuit

Name	Term.	Function
Safety Out	7	Output for safety circuit 24V/0.5A
Stop	7,8	Stops gate. Contact normally closed, link required if not used.
Stop	9,10	Stops gate. Contact normally closed, link required if not used.
Stop	11,12	Stops gate. Contact normally closed, link required if not used.

Limit positions, safety circuit

Name	Term.	Function
	13	Separate +24VDC for limit switches - motor 1
GÖ1	14	Opening limit switch for motor 1. Breaks contact in fully open position.
GS1	15	Closing limit switch for motor 1. Breaks contact in fully closed position.
		Separate +24VDC for limit switches - motor 2
GÖ2	17	Opening limit switch for motor 2. Breaks contact in fully open position.
GS2	18	Closing limit switch for motor 2. Breaks contact in fully closed position.

Control keys

Name	Term.	Function
+24VDC	19	24V DC output for access controls.
Open	20	Open gate on open signal 24V DC.
Close	21	Close gate on close signal 24V DC .
+24V DC	22	24V DC output for access controls.
Open	23	Open gate on open signal 24V DC.
Close	24	Close gate on close signal 24V DC.
+24V DC	25	24V DC output for access controls.
Prog. Input 1	26	Programmable input.
Prog Input 2	27	Programmable input.

Photocell, safety loop

Name	Term.	Function
+24V DC	28	Output for photocell/Induction loop 24V/50mA.
FC/SL	29	Photocell/loop, stops gate when closing. Contact normally closed, when powered.
0V	30	Earth connection.

Communication

Name	Term.	Function
RS485	31,32	Communication with a separate DAAB panel.

24V DC output

Name	Term.	Function
+24V DC	33	24V DC for supply to additional access controls
0V	34	Earth termination.

Bridge connector

Name	Term.	Function
Connection	35,36	Connection terminal.

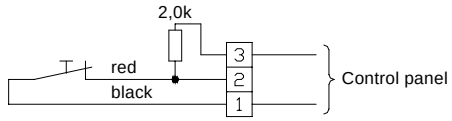
Safety buffer connection

- Resistors must always be placed in safety circuits on the buffer to enable the system to fail safe.
- The resistance value must be 1,0-8,2kΩ, with 1% tolerance and power resistance at least ½W.
- When connecting more than one buffer, use the same resistance value on all buffers.
- Closing buffers mounted on the gate leaf powered by motor 1 should be connected to KSS1. Closing buffers mounted on the gate leaf powered by motor 2 should be connected to KSS2.

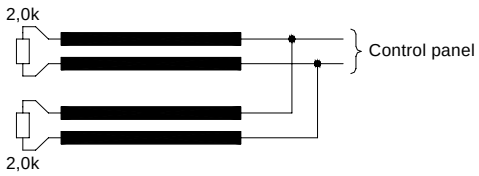
There is a built-in safety buffer monitor on the board which functions with both mobile and static safety buffers. The EP103 monitors itself by an auto-test, which takes place before each start and after every stop. An error message is received if there is a fault. A 1,0-8,2kΩ resistor must be installed in the safety buffer circuit. The principal of the safety system is that this resistance is measured and any variation from this standard signals an alarm.

When mechanical switching type buffers are used, resistors must be connected in series with buffer. If more than one DAAB type safety buffer is connected, these should be connected in series or parallel, and the value of sum should be set in the control panel. If resistance switching buffers are connected in series, use only one final resistor. See drawings below for details.

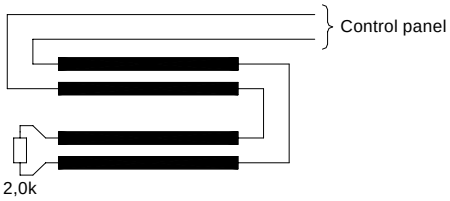
DAAB mechanical switching type safety buffer.



Solid state (resistance switching) safety buffer parallel connection



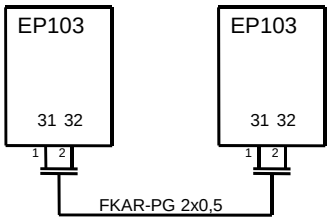
Solid state (resistance switching) safety buffer series connection.



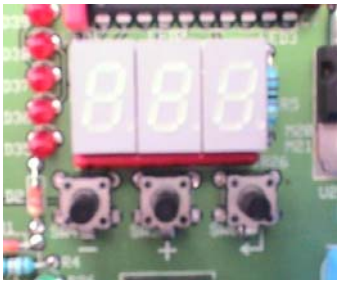
Connection between two DAAB EP 103 panels

To ensure correct communication between two DAAB panels it is important to take note of the following:

- Choose a twisted two-core screened cable.
- Cable size should not be less 0,2mm^2 .
- Choose a low capacitance cable with capacitance 50-70 μF/m.
- Check the polarity.



Reading and Setting values



CXX	**Channel number for EP103**
dXX	**Channel umber for vehicle detector**
EXX	**Error message.**
XXX	**Read** value
XXX-flash	**Write** value.
-	**Decrease** channel or value
+	**Increase** channel or value.
↵	**Toggle** between channel number and value
↵	**Save** when entering value.

Description
All values are stored in accordance with a *channel list*, as with TV channels, where each TV channel corresponds to a particular programme. Here, each channel corresponds to a certain control parameter or a measured value. The display may either show a *value* of 1-3 digits, or a *channel number* of two digits - a **C or d** will then be shown on the extreme left. This means **Channel number**.
Values may be both read and written; *the value flashes* when a *setting* is being changed.
If **E** (error) is displayed, followed by a number, this is an **Error message**. See error messages.
The ↵ key toggles between the value and the channel number. The value is saved in Write mode.
In channel mode, the **+** channel number key scrolls forward in the channel list. In Write, the value increases.
In channel mode, the **–** channel number key scrolls backwards in the channel list. In Write, the value decreases.

Save mode
If display keys are not pressed for 1.5 minutes, save mode is tripped and displays *decrease in brightness*. As soon as a key is pressed, normal mode is resumed.

Read values
C01-C18 are read channels. By activating these you can only read the actual value.
Follow the procedure below in order to read values:
1. Press the ↵ key so that that display shows **Channel number** (C at extreme left).
2. Look at the channel list to check the number of the value you want to read.
3. Step up or down with the **+** or **–** key to the correct channel number.
4. Press the ↵ key; the **Value** appears on the display..

Write values
C30-C99 are write channels. By activating these you can set the actual value.
Follow the procedure below in order to write a value:
1. Press the ↵ key so that the display shows **Channel number** (C at extreme left).
2. Look at the channel list to check the number of the value you want to change.
3. Step up or down with the **+** or **–** key to the correct channel number.
4. Press the ↵ key; the **Value** appears on the display.
5. Press the **+** key. The value begins to flash.
6. Step up or down with the **+** or **–** key until the value you want to write is shown.
7. Press the ↵ key: the value is saved.
8. Press the ↵ key once again and you are out of the channel. CXX is shown

Locked settings
Settings may be locked by service personnel, and cannot then be over written. In that case, channel C99 will be set to 01. Contact service personnel if values need to be written or changed.

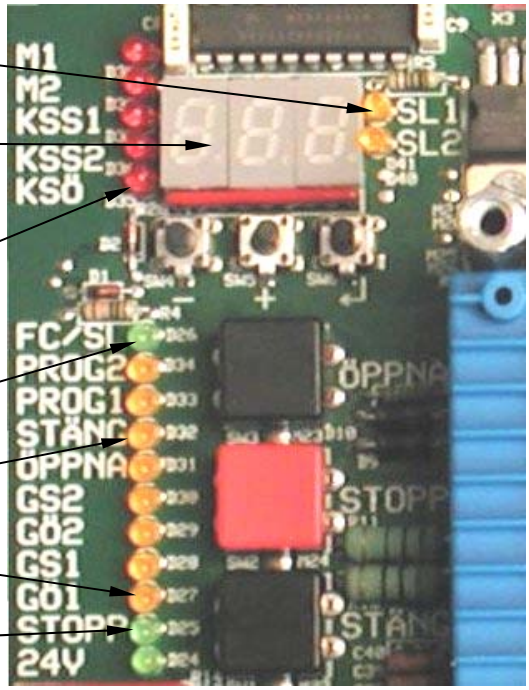
Error messages
If '**E'** appears on the extreme left, this is an error message. When a key is pressed, this message disappears and the display shows channel number.

Note all settings
Note all the settings written during commissioning in the channel list under value set (section on channel list for EP103). It is best to use a pencil so that values can be changed.

Display Diodes

To make matters easier when commissioning and fault-finding, light diodes are provided to indicate faults and input signals

Yellow light diodes loop detector Lit diode means affected loop.
Fault message on display When **E** (error) is shown on the display is it a Fault message (see page 53).
Red light diodes for error indication Unlit diode means no error. Lit diode means error. Flashing light diode means previous error, diode goes off next time gate is operated
Green photocell diode normally on Unlit means photocell/loop is actuated
Yellow light diodes for control keys Lit diode means key actuated.
Yellow light diodes for limit position Lit diode goes off when limit reached.
Green light diodes normally on 'Stopp' diode goes out when stop is actuated and stop circuit is broken.



Red light diodes for alarm

Indication	Function	Normally
M1	Indicates that the load sensor has tripped out for motor 1.	Off
M2	Indicates that the load sensor has tripped out for motor 2.	Off
KSS1	Indicates an error on safety buffer circuit ‘closing 1’.	Off
KSS2	Indicates an error on safety buffer circuit ‘closing 2’.	Off
KSÖ	Indicates an error on safety buffer circuit ‘opening’	Off

Green light diodes normally on

Indication	Function	Normally
FC/SL	Indicates that photocell/loop circuit is live and unbroken.	On
24V DC	Indicates the presence of voltage.	On
STOPP	Indicates that stop circuit is live and unbroken.	On

Yellow light diodes indicating signals from limit positions

Indication	Function
GÖ1	Lit indicates that motor 1 can open more, off in open position
GS1	Lit indicates that motor 1 can close more, off in closed position
GÖ2	Lit indicates that motor 2 can open more, off in open position
GS2	Lit indicates that motor 2 can close more, off in closed position

Yellow light diodes indicating control signals

Indication	Function
PROG1	Indicates signal for programmable input 1
PROG2	Indicates signal for programmable input 2
STÄNG	Indicates signal for close.
ÖPPNA	Indicates signal for open.

Channel list for EP103

The channel list is the same for control type EP103-1 (1 motor) and control type EP103-2 (2 motors). Certain channels apply only to control type EP103-2. These are marked by an * before the channel number.

Measured value to be read

No.	Specification	Range
C00	Service channel, only for service personnel	000-999
C01	Program version	0.00-9.99
C02	Mains voltage, phase L1.(Accuracy of measurement +- 15%)	000-255 V
C03	Voltage after stop circuit	00.0-30.0 V
C04	Resistance, safety buffer close 1 (KSS1)	0.0-10.0 kΩ
C05	Resistance, safety buffer close 2 (KSS2)	0.0-10.0 kΩ
C06	Resistance, safety buffer open (KSÖ)	0.0-10.0 kΩ
C07	Load on motor 1	0.00-1.99 kW
*C08	Load on motor 2	0.00-1.99 kW
C09	Motor current, motor 1	0.0-5.0 A
*C10	Motor current, motor 2	0.0-5.0 A
C11	Operation time. motor 1	000-999 Sec
*C12	Operation time, motor 2	000-999 Sec
C13	Time motor 1 opened from closed position Used for limited opening	00.0-99.9 Sec
C14	Number of openings (Total no of openings =C14+C15)	000-999 times
C15	Number of openings x1000	000-999 times
C16	Time motor 2 opened from closed position Used for limited opening	00.0-99.9 Sec
C17	Phase angle Motor 1.	0.00-0.99 Cos φ
*C18	Phase angle Motor 2.	0.00-0.99 Cos φ
C19	Count down for automatic closing (C50)	0.00-9.59min.sek
C20	The reason why the drive last stopped. 1=Limit switch open (terminal no 14, 17). 2=Limit switch close (terminal no 15, 18). 3=Stop button (terminal no 8, 10, 12). 4=Photocell (terminal no 29).	1-4

Commissioning: values to be entered when commissioning

No.	Specification	Value	Start	Set
C30	Limit for load sensor, motor 1	0.05-1.99 kW	0.40	
*C31	Limit for load sensor, motor 2	0.05-1.99 kW	0.40	
C32	Limited operation time	005-999 Sec	005	
C33	Latched / deadman control 0=Open and close, deadman control. Only used during commissioning. 1=Open latched, close deadman control 2=Open deadman control, close latched 3=Open and close, latched 4=Open and close, deadman control.	0-4	0	
C34	Type of voltage feed. Used for the load sensor. 0=3x400V+N, 1=3x230V, 2=1x230V 3=3x400V-N	0-3	0	
C35	Type of control. 0=Standard 1=Sectional over head door	0-1	0	
C36	Type of stop at over run. 0=Time 1=Time or load sense 2=Time or buffer 3=Time, load sense or buffer	0-3	3	

Delay of gate half, magnetic lock

No.	Specification	Value	Start	Set
*C38	Time delay in opening motor 2 and closing motor 1. Used for magnetic lock or overlap of gate half	0.1-5.00 sec	0.1	
C39	Time delay in opening before motor 1 starts, used for magnetic lock so that magnet can get rid of remanence.	0.00-0.99 sec	0.00	

Number of safety buffers, load sensor function and motor protection

No.	Specification	Value	Start	Set
C40	Resistance value buffers connected to KSS1, 0=buffer off	0.0 1,0-8,2KΩ	2,0	
C41	Resistance value buffers connected to KSS2, 0=buffer off	0.0 1,0-8,2KΩ	2,0	
C42	Resistance value buffers connected to KSÖ, 0=buffer off	0.0 1,0-8,2KΩ	0,0	
C43	Load sensor, value 0 only for service and fault finding. 0=Disabled. 1=Reversing in closing, stop in opening. 2=Stop in closing, reversing in opening. 3=Reversing in closing and opening. 4=Stop in closing and opening.	0-4	3	
C44	Limit for motor protector, motor 1	0.5-4.0 A	2.1	
*C45	Limit for motor protector, motor 2	0.5-4.0 A	2.1	
C46	Deadman closure when KSS or FS/SL out of order or actuated. 0=off, cannot be closed 1=can be closed.	0-1	1	
C47	Function of the safety buffers. 1=Reversing in closing, stop in opening. 2=Stop in closing, reversing in opening. 3=Reversing in closing and opening. 4=Stop in closing and opening.	1-4	3	
C48	Safety buffer reversing during over run time (C87, C88). 0=Disabled (no safety buffer reversing during over run time). 1=Safety buffer reversing during over run time. 2=Safety buffer reversing during over run time and also during set time in C92.	0-2	0	

Automatic closure and FC/SL closure

No.	Specification	Value	Start	Set
C49	Short time for automatic closure. To get shorter time than 0,8 seconds also C92 have to be changed.	0.00-0.1-9.9 sec	0.00	
C50	Time for automatic closure	0.00-9.59 min.sec	0.00	
C51	Max. open time in closure with FC/SL. 0 = no closure with FC/SL. Set time = closure with FC/SL	0.00-9.59 min.sec	0.00	
C52	Time for starting automatic closure, after actuation of 'stop' command. 0= No automatic closure after using 'stop' command.	0.00 0.20-9.59 min.sec	0.00	
C54	Closure with FC/SL, SL1 and SL2. 0=close as soon as FC/SL is not actuated. 1=first open fully, then close.	0=immediately 1=fully open	1	
C55	Function for FC/SL, SL1 and SL2 in closing movement. 1=Reverse, 2=Stop	1-2	1	
C56	Countdown automatic closing by affected FC/SL. 0=Affected FC/SL does not restart the countdown for automatic closure. 1= Affected FC/SL does restart the countdown for automatic closure.	0-1	1	
C57	Function for FC/SL in opening direction. 0=Disabled, (FC/SL has not any effect in opening direction). 1=Stop with restart of countdown automatic closure. 2=Stop with restart of countdown automatic closure according to C52).	0-2	0	

Limited opening, opening of a gate half and lock opening

No.	Specification	Value	Start	Set
C59	Time for part opening motor 1. 0=full opening	00.0-99.9 sec	05.0	
*C60	Time for part opening motor 2. 0=full opening	00.0-99.9 sec	05.0	
C61	Programmable input 1. See list of functions on next page.	00-22	00	
C62	Programmable input 2. See list of functions on next page.	0-22	00	
C63	Prioritised direction change. 0=none 1=open 2=close 3=open and close	0-3	1	
C64	Interlock with another door 0=no interlock 1=interuption of open until the other door is closed. 2=interuption of open until the other door is opened. 3=interuption of close until the other door is closed.	0-3	1	
C65	Interlock with ‘open’ memory. Remove interlock with ‘stop’ 0=Does not remember ‘open’. Interlock is not removed with ‘stop’ 1= Remember ‘open’. Interlock is not removed with ‘stop’ 2= Does not remember ‘open’. Interlock is removed with ‘stop’. 3= Remember ‘open’. Interlock is removed with ‘stop’	0-3	3	
C67	Functions for radio receiver. See list of functions on next page	00-16	03	
C68	Disable the opening function for internal radio receiver. 0=The function is turned off. Usual opening function. (prog. input hasn’t any function for the radio receiver) 1=Only open when signal on programmable input 1. 2=Only open when signal on programmable input 2.	0-2	0	

Functions for programmable inputs and radio.

Set	Explanation
00	Input turned off.
01	Opening only gate leaf 1.
02	Opening only gate leaf 2.
03	Opening both gate leaf 1 and 2.
04	Limited opening of gate leaf 1. (Time is set in C59).
05	Limited opening of gate leaf 2. (Time is set in C60).
06	Limited opening of gate leaf 1and 2. (Time is set in C59 and C60).
07	Open/stop/close only gate leaf 1.
08	Open/stop/close only gate leaf .2.
09	Open/stop/close both gate leaf 1 and 2.
10	Open/close only gate leaf 1.
11	Open/close only gate leaf 2.
12	Open/close both gate leaf 1 and 2.
13	Limited open/close of gate leaf 1. (Time is set in C59).
14	Limited open/close of gate leaf 2. (Time is set in C59).
15	Limited open/close of gate leaf 1 and 2. (Time is set in C59 and C60).
16	Inter lock opening. Opening signal is send on.
17	Automatic closing is turned off as long there is a constant signal.
18	Automatic closing is turned off and both gate leafs will open when there is a constant signal.
19	Blocking is turned off. The setting in C64 is removed when there is a constant signal.
20	Automatic closing is turned off and blocking is turned off. The setting in C64 is removed and both gate leafs will open when there is a constant signal.
21	Automatic closing is turned off and blocking is turned off. The setting in C64 is removed and both gates will open when there is a constant signal.
22	Constant open. Automatic closure off and opens the gate. Is restored when another manoeuvre signal is given.

Indications for output card

No.	Specification	Value	Start	Set
C70	**Output card** 0=none 1=Yes 0=Channels 71-82 isn't shown. 1=Channels 71-82 is shown and can be set.	0-1	0	

Functions for output 2 (UT2)

C71	Function for output 2 0=Disabled. 1=Traffic lights (C72-C74 and C76 apply). 2=Warning light when door is moving (C75-76 apply). 3=Remote reporting (C72-C74 apply).	0-3	1	
C72	Type of signal when gate is closed and either '1' or '3' has been selected in C71. 0=No light, 1=Constant light, 2=Flashing light	0-2	1	
C73	Type of signal when gate is in the intermediate position and either '1' or '3' has been selected in C71. 0=No light, 1=Constant light, 2=Flashing light.	0-2	1	
C74	Type of signal when gate is open and either '1' or '3' has been selected in C71. 0=No light, 1=Constant light, 2=Flashing light	0-2	0	
C75	Type of signal when gate is moving when '2' has been selected in C71 0=No light, 1=Constant light, 2=Flashing light	0-2	2	
C76	Type of for warning signal prior to gate commencing to close or open. 0=Disabled. 1=Constant light before automatic opening and automatic closing. 2=Flash light before automatic opening and automatic closing. 3=Constant light before closing, automatic opening and automatic closing. 4=Flash light before closing, automatic closing and automatic opening. 5=Constant light before opening, closing, automatic opening and automatic closing. 6=Flash light before opening, closing, automatic opening and automatic closing.	0-6	0	
C77	Pre-warning time period. (with setting in C76).	00-99 sec	03	

Functions for output 1 (UT1)

C78	Functions for output 1. 0=Disabled. 1=Traffic lights (channels C79-C81 apply). 2=Alarm – if buffer fails in motion. 3=Remote reporting (channels C79-81 apply). 4=Presence detection or direction detection (signal according to d91)	0-4	1	
C79	Type of signal when gate is closed and either '1' or '3' has been selected in C78. 0=No light, 1=Constant light, 2=Flashing light.	0-2	0	
C80	Type of signal when gate is in the intermediate position and either '1' or '3' has been selected in C78. 0=No light1=Constant light 2=Flashing light.	0-2	0	
C81	Type of signal when gate is open and either '1' or '3' has been selected in C78 0=No light 1=Constant light 2=Flashing light.	0-2	1	

Settings for outputs 1 and 2

C82	Rate of flash.	0.1-2.0	0.5	

Relay function for output 1

C83	Inversion of contact function for output 1. 1=Making (normally open), 2=Breaking (normally closed).	1-2	1	

Time delays

No.	Description	Value	Start	Set
C84	Over run time after limit switch open motor 1.	0.00-4.99 sek	0.00	
*C85	Over run time after limit switch open motor 2.	0.00-4.99 sek	0.00	
C86	Time for opening of door after having reached closed.	00 15-30 millisec	00	
C87	Over run time after limit switch close motor 1.	0.00-4.99 sec	0.00	
*C88	Over run time after limit switch close motor 2.	0.00-4.99 sec	0.00	
C89	Time for delay for load sensor when running.	0.01-2.99 sec	0.06	
C90	Time for blocking of load sensor at start. Concerns every start (manoeuvre signals and reversing).	0.1-5.0 sec	0.5	
C91	Time for motor protector.	0.1-5.0 sec	1.0	
C92	Time delay of changing of direction when affected FC/SL open or close.	0.1-4.0 sec	0.8	
C93	Time delay for change of direction when affected safety buffer or load sensor.	0.03-2.00 sec	0.10	
C94	Reversing time for safety components in opening direction (KSÖ or load sensor).	0.1-2.0 sec	1.0	

Communication, special

No.	Specification	Value	Start	Set
C95	Network number for communication. 0=Disabled.	00-16	00	
C99	Service channel for service personnel only.	00-99	00	

Channel list for vehicle detector

The vehicle detector has its own d-channels for easier setting. The channels become visible first when d00 is set.

Channels for setting of detector card

No	Specification	Value	Start	Set
d00	0=Measurment disabled (d-channels isn't visible). 1=Only loop 1 is used. 2=Only loop 2 is used. 3=Both loop 1 and 2 are used.	0-3	0	

Measured values for reading

No	Specification	Measuring range
d01	Affection from vehicle on loop 1.	000-999
d02	Affection from vehicle on loop 2.	000-999
d03	Measurement test result loop 1 (totally result=d03+d04).	000-999
d04	Measurement test result loop 1 x1000.	00-99
d05	Measurement test result loop 2 (totally result=d05+d06).	000-999
d06	Measurement test result loop 2 x1000.	00-99

Sensitivity, operationlimit on/off

No	Specification	Value	Start	Set
d31	Operation limit for loop input 1.	005-999	015	
d32	Operation limit for loop input 2.	005-999	015	
d33	Difference between operation ON and OFF for loop 1.	000-050	003	
d34	Difference between operation ON and OFF for loop 2.	000-050	003	
d35	Presence time loop 1, 0=Disabled.	005-240 min	120	
d36	Presence time loop 2, 0=Disabled.	005-240 min	120	
d37	Quick presence time loop 1, 0=Disabled	00-99 sek	00	
d38	Quick presence time loop 2, 0=Disabled	00-99 sek	00	

Safety

No	Specification	Value	Start	Set
d40	0=Disabled. 1=Safety only on loop 1. 2=Safety only on loop 2. 3=Safety on both loop 1 and 2.	0-3	3	
d41	Safety during the over run time. 0=Disabled 1=Safety only on loop 1. 2=Safety only on loop 2. 3=Safety on both loop 1 and 2.	0-3	3	

Loop closure

No	Specification	Value	Start	Set
d50	0=Disabled. 1=Loop closure only on loop 1. 2=Loop closure only on loop 2. 3=Loop closure on both loop 1 and 2.	0-3	0	

Opening function

No	Specification	Value	Start	Set
d61	Function for loop 1. See table below.	0-6	0	
d62	Function for loop 2. See table below.	0-6	0	

Opening function for loop 1 (d61) and loop 2 (d62)

No	Specification
0	Disabled.
1	Open gate leaf 1.
2	Open gate leaf 2.
3	Open gate leaf 1 and 2.
4	Limited opening of gate leaf 1 (time set in C59).
5	Limited opening of gate leaf 2 (time set in C60).
6	Limited opening of gate leaf 1 and 2 (time set in C59 and C60).

Type of opening signal

No	Specification	Value	Start	Set
d63	Type of opening signal by affected loop 1. 0=Pulse. 1=Signal as long as the loop is affected.	0-1	0	
d64	Type of opening signal by affected loop 2. 0=Pulse 1=Signal as long as the loop is affected.	0-1	0	

Disable opening function given times with programmable input

No	Specification	Value	Start	Set
d65	Opening with loop 1. 0=Disabled (prog. input has no function for loop). 1=Only by signal on programmable input 1. 2=Only by signal on programmable input 2.	0-2	0	
d66	Opening with loop 2. 0=Disabled (prog. input has no function for loop). 1=Only by signal on programmable input 1. 2=Only by signal on programmable input 2.	0-2	0	

Delayed opening

No	Specification	Value	Start	Set
d67	Delayed opening by loop 1. 0=Disabled. Opening will be done only if loop becomes affected set time.	0.0-9.9 sec	0.0	
d68	Delayed opening by loop 2. 0=Disabled. Opening will be done only if loop becomes affected set time.	0.0-9.9 sec	0.0	

Opening of inter lock

No	Specification	Value	Start	Set
d71	0=Disabled. 1=Opening of inter lock with loop 1.	0-1	0	
d72	0=Disabled. 1=Opening of inter lock with loop 2.	0-1	0	

Problem that the gate is affecting the measurement test result

No	Specification	Value	Start	Set
d81	Balancing for effect of gate leaf driven by motor 1 on loop 1.	00-50	3	
d82	Balancing for effect of gate leaf driven by motor 1 on loop 2.	00-50	3	
d83	Balancing for effect of gate leaf driven by motor 2 on loop 1.	00-50	3	
d84	Balancing for effect of gate leaf driven by motor 2 on loop 2.	00-50	3	

Presence detection and direction detection

No	Specification	Value	Start	Set
d91	Function when loop 1, loop 2 or FC/SL becomes affected. See table below.	0-14	1	

Set	Explanation
01	Presence detection. Signal when SL1 becomes activated. The signal is released when SL1 becomes unaffected.
02	Presence detection. Signal when SL2 becomes activated. The signal is released when SL2 becomes unaffected.
03	Presence detection. Signal when both SL1 and SL2 are activated. The signal is released when either SL1 or SL2 becomes unaffected.
04	Presence detection. Signal when FC becomes affected. The signal is released when FC becomes unaffected.
05	Presence detection. Signal when both FC and SL1 become affected. The signal is released when either FC or SL1 become unaffected.
06	Presence detection. Signal when both FC and SL2 become affected. The signal is released when either FC or SL2 become unaffected.
07	Presence detection. Signal when FC, SL1 and SL2 become affected. The signal is released when either FC, SL1 or SL2 become unaffected.
08	Presence detection. Signal when both SL1 and SL2 become affected. The signal is released when either SL1 or SL2 become unaffected.
09	Direction detection. Signal when first SL1 and then SL2 become affected. The signal is released when SL2 becomes unaffected.
10	Direction detection. Signal when first SL1 and then FC become affected. The signal is released when FC becomes unaffected.
11	Direction detection. Signal when first SL2 and then SL1 become affected. The signal is released when SL1 becomes unaffected.
12	Direction detection. Signal when first SL2 and then FC become affected. The signal is released when FC becomes unaffected.
13	Direction detection. Signal when first FC and then SL1 become affected. The signal is released when SL1 becomes unaffected.
14	Direction detection. Signal when first FC and then SL2 become affected. The signal is released when SL2 becomes unaffected.

Service fault finding

Check	Possible cause
Error message on display? E*XX*	See chapter about error messages.
The gate is reversing and M1/M2 diodes are lit	Load sensor, read C07, C08? Correct setting in C30/C31? Correct power supply in C34? Mechanical fault? Does the gate run easily when released?
The gate will not open or close.	All three green diodes should be lit. Unused stop inputs should be linked out? Are diodes for open, close, prog.1, or prog 2. lit? They should not. Incorrect wiring/connection? Diodes for limit switch must light, for example GÖ1 is indicating it is possible to open motor 1. The limit switches are in serial connection with stop circuit. Check if pre warning is set in C76? Check if interlock is set in C64?
You can not close the gate but it will open	FC/SL diode should indicate green. Diodes KSS1 or KSS2 shall not be lit.
Problems with automatic closing?	Bad contact in stop circuit? Check C52 (restart after actuation of stop).
Display or flashing diodes are not illuminated.	Are all phases power supplied? Maybe short circuit to earth on the low voltage circuit. Disconnect the power supply for 1 minute and disconnect the terminals 1-34 and connect the power supply again.
Do you have to hold the manoeuvre button to operate the gate?	Check that latched is chosen in C33. The FC/SL green diode should be lit and the red KSS diode should be unlit. The SL1 and SL2 diodes shall only lit if one of the vehicle loops are affected.
Does the gate mysteriously stop “by it self”?	Try to run the gate again, both open and close. Check at the same time C20 for the number that will be shown when the gate stops “by it self” See the channel list for the reason why the gate stops.

If all displays light as they should, no error messages are displayed and the automatic controls still fail to start, note the **item number**, marked inside of the housing and contact DAAB for help.

Error messages

Turning on power

When power is turned on actual model of EP 103 is shown on the display.
EP1=EP103-1, for 1 motor. **EP2**=EP103-2, for 2 motor

To reset an error message, press any of the push-buttons under the display.
To reset messages E04 and E05 power has to be cut off and re-established.

Error message	Meaning	Possible cause
E01	Motor protector motor 1 tripped out	Motor running sluggishly or seized, disengage to test. Blown fuse. Phase error. Break in cable to motor, or in motor winding. Is correct limit for motor protector set? (C44,C45).
E02	Motor protector motor 2 tripped out.	
E03	Max. operation time exceeded.	Is correct operation time set? Mechanical error, drive disengaged.
E04	Safety test (autotest.)	Requires voltage to be cut off for resetting. Is safety circuit properly connected? Can any extraneous voltage get into the circuit?
E05	Illegal running.	Requires voltage to be cut off for resetting Control panel registers that motor is on when it should be disengaged. Someone has overridden the contactors. .
E06	No current motor 1.	Phase error. Blown fuse. Break in cable to electric motor.
E07	No current motor 2.	
E08	Voltage loss, brief dip, 24V.	Voltage loss, brief dip, 24V
E09	Program watchdog tripped out..	Powerful interference, e.g. thunderstorm.
E10	Clock monitoring error..	Error in control panel program clock.
E11	Repeated restarting of automatic controls.	Short circuit in safety circuit
E12	Memory error.	Change program circuit.
E13	Incorrect program circuit programming. .	Change program circuit.
E14	Communication fault, external unit not answering. Correct set up on EP 103?	Reset by pressing any button at the display Correct polarity on the communications cable? Break in communications cable? Correct setting on both panels? (C95)
E15	Voltage loss, brief dip, 230V..	Loss of power.
E16	Fault in safety buffer monitoring	Only for sectional overhead door. Mechanical fault in buffer? Correct after operation time? (C87)
E17	Buffer or load sensor has been activated more than five times in a row.	Is there any obstacle stopping the gate from coming to closed position?
E18	Error loop 1.	Is the loop and the conductor electrically complete? See the user manual for faultfinding.
E19	Error loop 2.	